
May 21, 2002



Supply Inventory Management

Accountability and Control of
Materiel at the Corpus Christi
Army Depot
(D-2002-091)

Department of Defense
Office of the Inspector General

Quality

Integrity

Accountability

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Abstract This is the third in a series of reports being issued by the Inspector General of the Department of Defense that discusses accountability and control of materiel at DoD maintenance depots. The report discusses conditions identified in prior audits concerning the accountability and control of materiel but remain uncorrected. The DoD FY 2002 budget for depot maintenance was about \$14.4 billion. The Army portion of that amount was about \$1.7 billion for operation of five maintenance depots. A significant portion of the Armys depot maintenance budget was for materiel used in repair and overhaul processes at the depot maintenance facilities. Depot maintenance facilities need effective inventory control systems to ensure that an adequate supply of materiel, parts, and supplies are on hand to maintain efficient levels of operation and to meet the demands of customers. An effective system is also important to disclose defective and obsolete goods; prevent loss through damage, pilferage, or waste; and ensure existence of physical quantities and values shown on inventory records. Through inventory control, materiel not needed for requirements at a depot can be made available to inventory managers for redistribution for other known requirements.		
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Acronyms

ASRS	Automated Storage and Retrieval System
AMCOM	Aviation and Missile Command
IOC	Industrial Operations Command
MSFS	Maintenance Shop Floor System
PCN	Program Control Number



INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
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May 21, 2002

MEMORANDUM FOR AUDITOR GENERAL, DEPARTMENT OF THE ARMY

SUBJECT: Audit Report on Accountability and Control of Materiel at the Corpus Christi Army Depot (Report No. D-2002-091)

We are providing this report for review and comment. This report is one in a series being issued by the Inspector General of the Department of Defense that discusses accountability and control of materiel at maintenance depots.

DoD Directive 7650.3 requires that all recommendations and potential monetary benefits be resolved promptly. The Army did not respond to the draft of this report. Therefore, we request that the Army provide comments on the final report by July 19, 2002.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Mr. Dennis E. Payne at (703) 604-8907 (DSN 664-8907) (dpayne@dodig.osd.mil) or Mr. Joseph M. Austin at (703) 604-9178 (DSN 664-9178) (jaustin@dodig.osd.mil). See Appendix B for the report distribution. The audit team members are listed inside the back cover.

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Report No. D-2002-091

(Project No. D2000LH-0285.002)

May 21, 2002

Accountability and Control of Materiel at the Corpus Christi Army Depot

Executive Summary

Introduction. This is the third in a series of reports being issued by the Inspector General of the Department of Defense that discusses accountability and control of materiel at DoD maintenance depots. The report discusses conditions identified in prior audits concerning the accountability and control of materiel but remain uncorrected. The DoD FY 2002 budget for depot maintenance was about \$14.4 billion. The Army portion of that amount was about \$1.7 billion for operation of five maintenance depots. A significant portion of the Army's depot maintenance budget was for materiel used in repair and overhaul processes at the depot maintenance facilities.

Depot maintenance facilities need effective inventory control systems to ensure that an adequate supply of materiel, parts, and supplies are on hand to maintain efficient levels of operation and to meet the demands of customers. An effective system is also important to disclose defective and obsolete goods; prevent loss through damage, pilferage, or waste; and ensure existence of physical quantities and values shown on inventory records. Through inventory control, materiel not needed for requirements at a depot can be made available to inventory managers for redistribution for other known requirements.

Results. Materiel stored in locations within the Automated Storage and Retrieval System exceeded requirements at the Corpus Christi Army Depot, Texas. Also, large amounts of materiel stored in work centers on the maintenance shop floor were not recorded on accountable records. As a result, the audit identified about \$83 million of \$432 million of inventory on hand in the Automated Storage and Retrieval System records that was above the approved 60-day level, and therefore, excess to requirements and invisible to the wholesale supply system. Further, the audit identified about \$7 million of materiel stored in work centers on the maintenance shop floor excess to any known requirements. The full extent of materiel stored in work centers on the maintenance shop floor was unknown. Additionally, inventory records at the Corpus Christi Army Depot had count errors in about 9.8 percent of the storage locations. Large and inaccurate inventories made materiel difficult to manage. Also, materiel stored for long periods could become lost, obsolete, stolen, or unserviceable; and proper management decisions over the utilization of materiel can be hampered. See Appendix A for details on our review of the management control program as it relates to management of materiel at the Corpus Christi Army Depot.

Summary of Recommendations. We recommend that the Commander, Aviation and Missile Command direct the Corpus Christi Army Depot to comply with current guidance regarding the storage of maintenance materiel at the depot and the preparation and submission of reports for management review. We also recommend that the Corpus Christi Army Depot price the materiel stored in the Automated Storage and Retrieval System, inventory materiel stored in work centers and record on accountable

records, and perform annual physical inventories and quarterly reviews of materiel. Additionally, we recommend that the Corpus Christi Army Depot review projects at the required completion stages, perform a monthly reconciliation between the Automated Storage and Retrieval System and Maintenance Shop Floor System files, and prepare and submit reports regarding management of materiel to management for review.

Management Comments. We provided a draft of this report on February 25, 2002. No written response to the draft report was received. We request that the Commander, Aviation and Missile Command and the Commander, Corpus Christi Army Depot provide comments on this report by July 19, 2002.

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Background

This report is the third in a series resulting from our audit of accountability and control of materiel at DoD maintenance depots. The DoD FY 2002 budget for depot maintenance is about \$14.4 billion. The Army portion of that amount is about \$1.7 billion for operation of five maintenance depots. A significant portion of the Army's depot maintenance budget is for purchasing materiel used in the repair and overhaul processes at depot maintenance facilities.

Corpus Christi Army Depot. Corpus Christi Army Depot (Corpus Christi), located at Corpus Christi, Texas, is the largest helicopter repair and overhaul facility in the world. Corpus Christi's mission includes overhaul, repair, modification, retrofit, testing, and modernizing helicopters, engines, and components for the Services and foreign military sales.

Materiel Classification. Materiel used at maintenance depots is generally classified as consumable or reparable. Consumables are supplies consumed while in use, such as repair parts and fabrication materiel. Once in use, consumables lose a separate identity. Reparables are secondary items, or subassemblies, that can be restored to a serviceable condition through depot-level maintenance and normally exchanged on a one-for-one basis. For each reparable issued to maintenance for repair or overhaul, a serviceable reparable should be returned to the supply system.

Accounting For and Controlling Materiel. Inventory control is defined as the control of materiel and goods in process by accounting and physical methods. Accounting control involves proper recording and reporting of inventories. Physical control involves the physical movement of inventories and consists of proper safeguards for receiving, storing, handling, and issuing materiel. The purpose of a physical inventory is to validate the storage location and determine the condition and quantity of items by physically inspecting and counting items.

Materiel Control. Materiel control is important because materiel not needed for the current requirements at a depot can be made available for redistribution of other known requirements. Each maintenance facility is required to record on-hand materiel balances on shop stock records. Shop stocks are demand-supported repair parts or consumable items that are stored within the maintenance activity to support workloads. For accounting purposes, shop stocks are considered consumed; however, depots are required to maintain shop stock records to show on-hand inventory balances.

Management Oversight. On October 1, 1995, the Army Industrial Operations Command (IOC) became fully established as a permanent Army Materiel Command major subordinate command and the office of primary responsibility for maintenance depots within the Army. On October 1, 1999, the IOC transferred full command and control of Corpus Christi to the Aviation and Missile Command (AMCOM), headquartered at Redstone Arsenal, Alabama.

The IOC issued a policy memorandum, "Management and Operations Policy for Automated Storage and Retrieval System (ASRS) and Standard Depot System (SDS) Maintenance at Industrial Operations Command Maintenance Depots, Revision 3," (IOC ASRS policy memorandum) August 1, 1996. ASRS is a mechanized storage system used for storing shop stock.

The IOC ASRS policy memorandum includes the following inventory management requirements:

- All materiel stored in ASRS, at a minimum, shall be identified by the owning cost center; national stock number/part number; program control number (PCN); quantity; acquisition source code; nomenclature; and condition code.
- Items stored in mission stocks must represent a bona fide potential requirement for performance of a maintenance or fabrication requirement.
- Availability of materiel from previously completed fabrication orders must be determined before placing new requisitions.
- Reclaimed materiel, materiel removed from assets in maintenance, and work in process may be stored until reused on the maintenance program. Excess reclaimed materiel will be turned in or transferred to a valid funded program.
- Prior to closing a depot maintenance program, all associated remaining repair parts, spares, and materiel on hand shall be transferred to an ongoing program or a program that shall begin within 180 days or turned in to the installation supply support activity within 15 days.
 - The gaining program must be funded, open, and valid.
 - The transferred materiel must be a bona fide potential requirement of the gaining program.
- An annual physical inventory of all materiel stored in ASRS must be performed.
- A reconciliation between the ASRS and Maintenance Shop Floor System (MSFS) files must be performed, at a minimum monthly, to determine if files are accurate.

Personnel at the Army Materiel Command advised us that because the IOC ASRS policy memorandum regarding the management of ASRS was not canceled when full command and control of Corpus Christi was transferred to AMCOM in October 1999, the policy memorandum would remain in effect until AMCOM issued its own policy.

Program Control Number. Corpus Christi assigns each job a PCN for scheduling work and tracking costs. The PCN remains in existence for the life of the job. Materiel is ordered for a specific PCN and is identified with that PCN until either consumed, transferred to another PCN, or disposed of. Once the PCN is closed, all of the associated remaining repair parts, spares, and materiel that are on hand should be transferred to an ongoing program or a program that will begin within 180 days or turned in to the installation supply support activity within 15 days.

Automatic Storage and Retrieval System. ASRS is a mechanized storage system within maintenance directorates and is used for storing maintenance shop stock and end-item subassemblies that are used for maintenance and fabrication programs. Corpus Christi uses the ASRS to store and account for depot maintenance materiel. ASRS maintains on-hand inventory balances and locations of the inventory. Materiel stored in ASRS is considered consumed for accountability purposes but should be identified to specific projects. At Corpus Christi, materiel is stored by PCN and stock numbers within ASRS and is only issued at the request of maintenance shops. Materiel stored in ASRS should be stored for short periods, as cited in the IOC ASRS policy memorandum. As it is used, materiel should be dropped from the ASRS records.

Maintenance Shop Floor System. Materiel issued to maintenance activities from the supply support activity is also controlled by the MSFS, which is an on-line computer system that shop personnel use to track maintenance activities. The MSFS interfaces offline with the ASRS through nightly batch processing. The MSFS records the issue and receipt of materiel and shows on-hand balances by stock number of the materiel stored in ASRS. The MSFS also shows the dollar value of materiel stored in ASRS. The on-hand quantities of materiel stored in the ASRS should agree with the balances of the MSFS. The MSFS does not interact with the depot supply support activity systems and stock accounts because the MSFS is not linked to depot supply and accounting records. Therefore, quantities that are on hand are not reported in the depot financial statements.

Objectives

The overall objective was to evaluate the effectiveness of policies and procedures used to account for and control materiel used by Corpus Christi. We also evaluated the management control program as it related to the objective. See Appendix A for a discussion of the audit scope and methodology, review of the management control program, and prior coverage related to the audit objectives.

Management of Materiel at the Corpus Christi Army Depot

Materiel stored in the ASRS exceeded requirements at Corpus Christi. Also, a large amount of materiel stored in work centers on the maintenance shop floor was not recorded on any accountable records. The conditions occurred because Corpus Christi did not comply with the Army guidance regarding management of materiel, did not perform annual physical inventories, and did not perform quarterly evaluations of materiel to determine if materiel was required. Excess materiel also accumulated because maintenance shop personnel were reluctant to turn in unused materiel when jobs were completed. Additionally, the lack of oversight by AMCOM contributed to excess materiel on hand. As a result, Corpus Christi could have as much as \$83 million of materiel stored in ASRS and more than \$7 million of materiel stored on maintenance shop floors excess to known requirements. Additionally, inventory records at Corpus Christi had count errors in about 9.8 percent of the storage locations. Large and inaccurate inventories made materiel difficult to manage. Also, materiel stored for long periods lose their visibility and can become lost, obsolete, stolen, or unserviceable; and proper management decisions over utilization of materiel can be hampered.

Depot Maintenance Materiel Guidance

DoD Regulation 4140.1-R, "DoD Materiel Management Regulation," May 20, 1998, provides policies for DoD Components regarding management of materiel. The regulation states that the DoD Component that has physical custody of materiel is responsible to care and safeguard the materiel and shall maintain quantitative balance records by individual storage location. Also, the DoD Components shall conduct annual physical inventories and shall take appropriate actions to ensure that the on-hand quantity and total item property records agree.

Army Regulation 750-2, "Army Materiel Maintenance Wholesale Operations," October 27, 1989, states that procurement of repair parts necessary to support maintenance of programmed reparable assets will be based on approved depot maintenance requirements. The regulation does not address stockage of expendable supplies and repair parts at maintenance depots. The Army issued interim guidance to Army Regulation 750-2 on November 28, 1994, that requires depots to limit maintenance and requisitioning of fabrication materiel at a 60-day level. That guidance remains in effect.

Army Regulation 735-5, "Policies and Procedures for Property Accountability," January 31, 1998, states that any property acquired by the Army from whatever source, whether paid for or not, must be accounted for on formal records from the time of acquisition until the ultimate consumption or disposal of the property occurs. Also, the Army Regulation requires that all of the on-hand property shall be inventoried annually.

Army Regulation 710-2, "Inventory Management Supply Below the Wholesale Level," October 31, 1997, states that support maintenance facilities are authorized a limited amount of expendable supplies and repair parts required for efficient operations. Each shop stock item must be reviewed, at a minimum, quarterly.

The IOC ASRS policy memorandum states the following:

- The purpose of ASRS is for short-term storage of maintenance materiel, which includes work in process.
- Items are not to be stored for long periods of time in ASRS without known requirements.
- Projects will be reviewed at the 50-percent, 75-percent, and 90-percent completion stages to determine if a need exists for materiel still in storage.
- Materiel shall not be stored in ASRS in an overhead account.
- Depots using the Standard Depot System shall review all materiel that has a date of last activity of more than 6 months old and verify on a monthly basis the PCN, national stock number, and condition codes.

Storage of Maintenance Materiel

Materiel stored in the ASRS exceeded requirements at Corpus Christi. Also, a large amount of materiel stored in work centers on the maintenance shop floor was not recorded on accountable records. As a result, Corpus Christi had about \$90 million of materiel that may be excess to requirements.

Materiel Stored in the Automated Storage and Retrieval System. On October 10, 2001, inventory records at Corpus Christi showed that 39,225 lines of materiel valued at about \$432 million were stored in 20,724 storage locations in ASRS. Materiel stored in ASRS is primarily work-in-process items and bench stocks. Of the \$432 million of materiel stored in ASRS, about \$36 million of materiel was stored in overhead PCNs, about \$22 million was potential excess materiel, about \$4 million was dormant materiel (materiel that had no use for more than 180 days), and about \$1 million of materiel was stored in closed PCNs. Some of the materiel had been stored in ASRS for long periods.

The \$432 million of materiel stored in ASRS was understated because many of the items stored in ASRS did not have extended dollar values. We were unable to determine the true value of the materiel stored without extended dollar values.

Unpriced Materiel. The overall value of the materiel stored in ASRS was understated. For example, our stratified sample of 375 storage locations from a universe of 20,724 storage locations selected for review included 160 lines of materiel without associated cost data. We projected that about 5,547 (26.8 percent) of the 20,724 storage locations had materiel stored in ASRS without associated dollar values. The dollar value for most of the unpriced materiel was available; however, personnel who were responsible for receipt of materiel have not assigned an accurate dollar value to all of the materiel stored in ASRS. We requested that production personnel provide cost data for the unpriced items. Production personnel provided cost data for 63 of the line items and advised audit personnel that cost data were not available for the remaining 97 line items of materiel. We later requested that the Customer Assistance Special Projects Section provide us with the cost data. We were provided the requested cost data for 96 of the 97 line items of materiel.

Length of Time Materiel Was Stored in ASRS. Inventory records at Corpus Christi showed that some materiel had been stored in ASRS for long periods, even though IOC ASRS policy memorandum states that the purpose of ASRS is for short-term storage and that materiel is not to be stored in ASRS for long periods without a bona fide requirement. Further, Army Regulation 750-2 requires depots to limit materiel at a 60-day level. Inventory records showed that about \$83 million of the about \$432 million of materiel stored in ASRS had been stored in excess of 180 days. Some of the materiel had been inactive since September 1997. We could not determine when the materiel was first stored in ASRS because the system showed only the date of last activity. We believe that the \$83 million of materiel that had been stored for more than 180 days could be excess to known requirements because some of the materiel had been stored in ASRS for as long as 4 years. The materiel that has been inactive for extended periods should be either turned in to the installation supply activity within 15 days of being identified as excess, transferred to an ongoing program if needed, or turned in as excess materiel. Corpus Christi personnel had not performed reviews of materiel with a date of last activity more than 6-months old to determine if the materiel was required.

Maintenance Shop Floor Work Centers. Large amounts of materiel stored in work centers on the maintenance shop floor were not recorded on accountable records, even though Army Regulation 735-5 states that any property acquired by the Army must be accounted for on formal records from the time of acquisition until either the ultimate consumption or disposal of the property occurs. For example, we judgmentally selected 153 locations within 3 work centers on the maintenance shop floor for physical inventory. We inventoried about \$7 million of materiel that was not recorded on the MSFS records, and therefore not visible to other potential Corpus Christi users. The materiel should be considered excess because it was not identified with any ongoing project or to satisfy any known requirement. Corpus Christi personnel did not comply with the Army guidance regarding the storage of materiel and did not

perform evaluations of the materiel to determine if a requirement for the materiel existed. We believe that the \$7 million of potential excess materiel inventoried within the 3 work centers is a small amount of the unrecorded materiel because the inventory was conducted in only 3 of the 86 work centers.

Continuing Problem. Excessive accumulation of materiel has been an ongoing problem within the Army and was reported by the Inspector General of the Department of Defense and the Army Audit Agency. Inspector General of the Department of Defense Report No. 94-117, "Accountability and Control of Materiel at Army Depots," June 3, 1994, states that Army depot maintenance facilities had excessive materiel on hand and did not adequately account for and control materiel. The report estimated that the depot maintenance facilities had about \$45.5 million of excess materiel on hand and that inventory records had error rates of about 14 percent. Army Audit Agency Report No. NE 89-6, "Depot Automated Storage and Retrieval System," March 24, 1989, states that materiel stored in ASRS was not adequately accounted for. The Army Audit Agency estimated that the Army-wide amount of unaccounted for materiel could be as much as \$120 million.

Accumulating Excessive Maintenance Materiel

Excessive materiel stockage accumulated at Corpus Christi because personnel did not comply with the Army guidance regarding management of materiel, did not perform annual inventories, and did not perform quarterly evaluations of materiel to determine if materiel was required. Excess materiel also accumulated because shop personnel were reluctant to turn in unused materiel when jobs were completed. Additionally, the lack of oversight by AMCOM contributed to excess materiel on hand.

Purchasing Materiel. Corpus Christi purchased required materiel at the beginning of projects and stored that materiel for the life of the project. Records were not available to show that Corpus Christi personnel reviewed projects at the 50-percent, 75-percent, and 90-percent completion stages to determine if a need for materiel in storage existed as required by the IOC ASRS policy memorandum. Also, records were not available to show the availability of materiel from previously completed projects before placing new requisitions. Further, records were not available to show how Corpus Christi accounted for materiel that was reclaimed from repaired components or removed from assets in maintenance. Purchasing materiel more in line with consumption would reduce the excess inventories, especially because program requirements can change.

Performing Physical Inventories. Corpus Christi did not correct the errors in ASRS records regarding quantities and values of on-hand inventories because annual physical inventories of materiel stored in ASRS were not performed. DoD Regulation 4140.1-R, Army Regulation 735-5, and the IOC ASRS policy memorandum require that annual physical inventories be performed. DoD Regulation 4140.1-R states that appropriate actions shall be taken to ensure that the on-hand quantity and total item property records agree. Annual physical inventories of materiel stored in ASRS were not being performed. According to

Corpus Christi management officials, the annual physical inventories were not performed because the depot did not have sufficient personnel to perform the inventories. We were advised that an annual physical inventory was started in 1993; however, the inventory was not completed because of a lack of personnel and other priorities. Although resources may not be available to perform annual wall-to-wall inventories, physical inventories are still required to be performed to care for and safeguard materiel. Alternatives to wall-to-wall inventories are annual random statistical samples of inventory or some type of cyclic inventory. Reducing the size of the inventory would reduce the effort involved in performing required physical inventories.

Quarterly Reviews. Corpus Christi personnel were not performing quarterly reviews on materiel stored in the ASRS as required by Army Regulation 710-2. Army Regulation 710-2 requires that shop stock items be reviewed quarterly, at a minimum, to determine if requirements still exist. Failure to perform quarterly reviews resulted in accumulation of the excessive materiel that was on hand. Corpus Christi personnel advised us that quarterly reviews were not performed because of a shortage of personnel.

Turn-in of Materiel. Maintenance personnel were reluctant to turn in excess materiel because they believed it was better to keep the excess materiel for anticipated future needs, thus eliminating long lead times. Maintenance personnel believed that they were saving the customers money by not turning the materiel in; however, the materiel was not recorded on any accountable records and was not visible to item managers to satisfy other known requirements. The materiel was left in locations without being inventoried. Maintenance personnel also wanted to avoid the fees being charged to dispose of the materiel because credit was not given for some of the materiel turned in. Instead, maintenance personnel were creating excess materiel on hand because for each job all the materiel was ordered without consideration to any materiel already on hand.

Accuracy of Inventory. The inventory records for accountability and control of materiel stored in ASRS at Corpus Christi were inaccurate. For our physical inventory, we statistically selected 375 locations from a universe of 20,724 locations to determine if quantities that were on hand matched those quantities identified in the ASRS records. We compared the balance shown on the ASRS record with a physical count of items stored in ASRS.

The inventory records and our physical count showed count errors in about 9.8 percent of the storage locations. By applying statistical weighting to the sample, we calculated that the number of errors in the universe of 20,724 locations to be about 2,027 (9.8 percent). An estimated total of 1,466 of the locations were overstated (ASRS records showed more than the physical count) and an estimated total of 795 locations were understated (ASRS records showed less than the physical count).

Reconciling the ASRS and the MSFS. Corpus Christi did not properly perform a reconciliation of the ASRS files with MSFS files to ensure the accuracy of ASRS storage records. The IOC ASRS policy memorandum states

that to enhance the control of materiel stored in ASRS, a reconciliation between the ASRS and MSFS files is required and adjustments should be properly made to correct any variances. Reconciliation between the two files should be performed at a minimum of once each month.

We were advised that the reconciliations were being performed; however, when ASRS files did not match the MSFS files, the physical inventories of materiel stored in an ASRS location were not being performed as required. Corpus Christi personnel used an alternative method for bringing the files into balance. If materiel was shown on ASRS files and not on the MSFS files, the materiel was added to the MSFS files. Conversely, if materiel was shown on the MSFS files and not on the ASRS files, the materiel was deleted from the MSFS files. If variances are found between the ASRS file and the MSFS file, a physical inventory of the storage location should be performed to determine the reason for the imbalance. Personnel within the maintenance directorate should not rely solely on computer-processed reports, then arbitrarily correct the errors to bring the reports in balance.

Management Oversight of Materiel

AMCOM has not exercised its duties as the office of primary responsibility for management of maintenance materiel at Corpus Christi or required Corpus Christi to submit reports for management review.

DoD and Army Regulations. DoD and Army Regulations collectively require that maintenance depots maintain quantitative balance records, account for materiel on formal records from the time of acquisition until the ultimate consumption or disposal of the property occurs, conduct annual physical inventories, and take appropriate actions to ensure that the on-hand quantity and total item property records agree. Those requirements were issued to ensure the care and safeguarding of materiel.

Industrial Operations Command Policy. The IOC ASRS policy memorandum requires maintenance depots to perform a reconciliation between ASRS and MSFS files and annual physical inventories of materiel stored in ASRS. In addition, to ensure adequate oversight regarding the management of ASRS, the IOC ASRS policy memorandum requires that the following reports be provided for management review:

- A monthly total dollar roll up for materiel stored in ASRS.
- Items stored in ASRS with no demand in the last 180 days.
- Materiel stored in ASRS against closed PCNs.
- Materiel stored against overhead PCNs.
- Potential excess materiel by PCN.

Aviation and Missile Command. On October 1, 1999, the IOC transferred full command and control of Corpus Christi to AMCOM. However, since October 1999, AMCOM has not been actively involved in management of the maintenance materiel at Corpus Christi or required Corpus Christi to submit reports regarding management of maintenance materiel for AMCOM review. We do not believe that AMCOM has adequately exercised its duties as the office of primary responsibility for Corpus Christi.

Reporting Requirements. Corpus Christi was not reporting the results of reconciliation reviews to higher-level management because such reviews were not requested. The IOC ASRS policy memorandum requires that depots submit quarterly reports concerning management of the ASRS inventories. We were advised that quarterly reports were no longer being prepared because AMCOM did not require them. Nevertheless, quarterly reports should be required so that the office of primary responsibility can monitor inventory levels and ensure accountability and control of materiel.

Monetary Benefits

The audit identified about \$432 million of inventory on hand in ASRS records. Of that amount, we estimated that about \$83 million was above the approved 60-day level, and therefore, excess to requirements and invisible to the wholesale supply system. Additionally, the audit identified about \$7 million of materiel stored in work centers on the maintenance shop floors. The materiel is considered excess materiel because it was not identified to any project or visible to the wholesale supply system. The full extent of the materiel stored in work centers is unknown. Excess materiel should be identified and made available to inventory managers for redistribution for other known requirements.

Conclusion

Corpus Christi did not comply with Army guidance relating to the storage of maintenance materiel in ASRS and materiel stored in work centers on maintenance shop floors and did not effectively manage the materiel. As a result, the depot had at least \$90 million of materiel in excess of the authorized 60-day storage level, some held as long as 4 years. Also, inventory records at Corpus Christi had count errors in about 9.8 percent of the storage locations. Materiel stored for long periods may become lost, obsolete, stolen, or unserviceable. Because the materiel stored in ASRS and in work centers on maintenance shop floors is considered consumed, the materiel loses visibility and is not available to the supply system item managers to meet other requirements.

A lack of accountability and control of materiel at maintenance depots is an ongoing problem at Corpus Christi. The Army Audit Agency first reported the condition in 1989. The Inspector General of the Department of Defense reported a similar condition in 1994. Our audit revealed that the problem continues to exist. We believe that effective management of maintenance

materiel requires, at a minimum, that Corpus Christi perform annual physical inventories, reconcile ASRS and MSFS records, and prepare quarterly reviews of inventory levels. Further, we believe that AMCOM should take an active role in monitoring the management of materiel at Corpus Christi.

Recommendations

1. We recommend that the Commander, Aviation and Missile Command direct the Corpus Christi Army Depot to comply with Army guidance regarding the storage of maintenance materiel at the depot and the preparation and submission of management reports for review.

2. We recommend that the Commander, Corpus Christi Army Depot immediately:

a. Price the materiel stored in the Automated Storage and Retrieval System that has no extended dollar value or that has been added to the physical inventory, and identify the value of inventory excess to prevailing requirements.

b. Inventory materiel stored in work centers on the maintenance shop floors, record the materiel on accountable records, identify the materiel for which a valid need exists, and turn in or transfer to other programs excess materiel.

c. Perform an annual physical inventory of all of the materiel stored in the Automated Storage and Retrieval System.

d. Perform the required quarterly reviews of materiel stored in the Automated Storage and Retrieval System to determine if valid requirements exist for the stored materiel.

e. Review projects at the 50-percent, 75-percent, and 90-percent completion stages to determine if a need exists for materiel in storage.

f. Perform a reconciliation between the Automated Storage and Retrieval System and Maintenance Shop Floor System files, at a minimum monthly, to determine if files are accurate. A physical inventory should be performed to correct any deficiencies.

g. Prepare and submit the following reports to management for review:

(1) A monthly total dollar value for materiel stored in the Automated Storage and Retrieval System.

(2) Items stored in the Automated Storage and Retrieval System with no demand in the last 180 days.

(3) Materiel stored in the Automated Storage and Retrieval System against closed program control numbers.

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- (4) Materiel stored against overhead program control numbers.
 - (5) Potential excess materiel by program control number.

Management Comments Required

The Army did not comment on a draft of this report. We request that the Commander, Aviation and Missile Command and the Commander, Corpus Christi Army Depot provide comments on the final report.

Appendix A. Audit Process

Scope and Methodology

We performed the audit at the Corpus Christi Army Depot. We contacted the Army Materiel Command, the AMCOM, and the Defense Logistics Agency. We concentrated on accountability and control of repair parts and consumable materiel. Our audit covered inventory records as of October 10, 2001. At the time of our audit, Corpus Christi reported in the ASRS a total inventory balance of about \$432 million.

We reviewed the DoD and Army regulations concerning policies, responsibilities, and procedures for managing repair parts and consumable materiel at the depot maintenance facility. To determine if repair parts and consumable materiel were accurately accounted for and controlled on depot property records, we inventoried materiel stored in the ASRS and in work centers on the maintenance shop floor. We also determined if annual inventories and quarterly reviews were performed and if management reports were prepared. We used the most recent records available for performing the inventories. For materiel stored in ASRS, we statistically selected 375 of 20,724 sample locations for review. For materiel stored in work centers on the maintenance shop floor, we judgmentally selected three work centers for review. We determined unit prices by using the Defense Logistics Information Service FED LOG dated November 1, 2000, and inventory records as of October 10, 2001.

We reviewed FY 1999, FY 2000, and FY 2001 management control certifications, required by the Federal Managers' Financial Integrity Act, that the depot submitted. We reviewed the certifications to determine if responsible managers were identifying and reporting material weaknesses regarding accounting for and controlling maintenance materiel in the annual management control certifications. We also followed up on implementation of recommendations from prior audit reports.

DoD Functional Area Reform Goals. Most major DoD functional areas have established performance improvement reform objectives and goals. This report pertains to achievement of the following functional area objective and goal.

- **Logistics Functional Area. Objective:** Streamline logistics infrastructure. **Goal:** Implement most successful business practices (resulting in reductions of minimally required inventory levels). (LOG-3.1)

High-Risk Area. The General Accounting Office has identified several high-risk areas in DoD. This report provides coverage of the Defense Inventory Management high-risk area.

Use of Computer-Processed Data. We relied on computer-processed data from the ASRS and the MSFS for determining the accuracy of inventory records. Our review of system controls and the results of data tests showed an error rate that casts doubt on the data's validity. Further, we believe that the monetary valuation of materiel was understated because a significant amount of materiel stored in ASRS had no extended dollar value. However, when the data are reviewed in context with other available evidence, we believe that the opinion, conclusions, and recommendations in this report are valid.

Sample Design. The ASRS has three general types of storage: unit-load (medium-sized), mini-load (small-sized), and oversize (large-sized). We used a stratified random sample design and selected simple random samples of locations reported as of October 10, 2001, within each type of storage, as listed below:

Table A-1. Population and Sampling

Type Storage	Locations in System	Locations in Sample	Retrieval Mode
Unit-load	11,160	125	Automated
Mini-load	9,023	125	Automated
Oversize	541	125	Warehouse worker
Total	20,724	375	

Sample Results. The following table reports projections that are based on our sample data. When ASRS reported a location as empty, but we found materiel stored there, we treated that location as "understated." The sample results are as follows:

Table A-2. Projections

Projection	Point Estimate	Lower Bound	Upper Bound
Overstated (Audit < System)	1,466 (7.1%)	685	2,246
Understated (Audit > System)	795 (3.8%)	187	1,403
Locations with Materiel			
Misstated (Over and Under)	2,027 (9.8%)	1,155	2,900
Locations with Prices Missing	5,547 (26.8%)	4,279	6,815

Because three independent groups of statistical projections are present (overstated values/locations, understated values/locations, and locations/records with no price data), we included the Bonferroni effect in the projections by adjusting the confidence level. We have used a 96.5-percent confidence level in

computing the individual bounds on errors for the above projections, which translates into an effective 90-percent overall confidence level for three independent groups of statistical projections.

Use of Technical Assistance. Statisticians from the Analysis, Planning, and Technical Support Directorate, Quantitative Methods Division, Office of the Inspector General of the Department of Defense provided assistance in designing a random statistical sampling plan for performing a physical inventory and evaluating the results of the physical inventory.

Audit Type, Dates, and Standards. We performed this economy and efficiency audit from July 2001 to January 2002 in accordance with generally accepted government auditing standards. We included tests of management controls considered necessary.

Contacts During the Audit. We visited or contacted individuals and organizations within DoD. Further details are available on request.

Management Control Program Review

DoD Directive 5010.38, "Management Control (MC) Program," August 26, 1996, and DoD Instruction 5010.40, "Management Control (MC) Program Procedures," August 28, 1996, require DoD organizations to implement a comprehensive system of management controls that provides reasonable assurance that programs are operating as intended and to evaluate the adequacy of the controls.

Scope of the Review of the Management Control Program. At Corpus Christi, we reviewed the adequacy of management controls regarding storage and disposition of maintenance materiel at the depot. We also reviewed the results of management self-evaluation of those management controls.

Adequacy of Management Controls. We identified material management control weaknesses for Corpus Christi as defined by DoD Directive 5010.40. Corpus Christi management controls for managing depot maintenance materiel were not adequate because managers stored for long periods materiel not needed for requirements. Also, annual physical inventories were not performed as required. Additionally, quarterly reviews to determine if materiel was needed were not performed, especially for materiel stored for long periods. Recommendations 1. and 2., if implemented, will improve management of materiel. A copy of the report will be provided to senior officials responsible for management controls within the Army.

Adequacy of Management's Self-Evaluation. Corpus Christi officials did not identify management of maintenance materiel as an assessable unit, and therefore, did not identify or report the material management control weaknesses identified by this audit.

Prior Coverage

During the last 5 years, the Inspector General of the Department of Defense has issued two reports that discuss management of repair parts for maintenance. The Army Audit Agency has also issued one report that discusses management of repair parts for maintenance. In addition, one Inspector General of the Department of Defense report and one Army Audit Agency report were more than 5 years old. Those reports discuss the use of the ASRS.

Inspector General of the Department of Defense (IG DoD)

IG DoD Audit Report No. D-2002-003, "Accountability and Control of Materiel at the Tobyhanna Army Depot," October 4, 2001

IG DoD Audit Report No. D-2001-186, "Accountability and Control of Materiel at the Tobyhanna Army Depot – Stockage of Communications-Electronics Materiel," September 21, 2001

IG DoD Audit Report No. 94-117, "Accountability and Control of Materials at Army Depots," June 3, 1994

Army

Army Audit Agency, Audit Report No. AA 97-161, "Management of Repair Parts for Maintenance," March 17, 1997

Army Audit Agency, Audit Report No. NE 89-6, "Depot Automated Storage and Retrieval System," March 24, 1989

Appendix B. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition, Technology, and Logistics
Deputy Under Secretary of Defense (Logistics and Materiel Readiness)
Assistant Deputy Undersecretary of Defense (Maintenance Policy, Programs, and Resources)
Under Secretary of Defense (Comptroller)
Deputy Chief Financial Officer
Deputy Comptroller (Program/Budget)

Joint Staff

Director, Joint Staff

Department of the Army

Under Secretary of the Army
Assistant Secretary of the Army (Acquisition, Logistics, and Technology)
Assistant Secretary of the Army (Financial Management and Comptroller)
Deputy Chief of Staff (Logistics)
Commander, Army Materiel Command
Commander, Aviation and Missile Command
Commander, Corpus Christi Army Depot
Auditor General, Department of the Army

Department of the Navy

Naval Inspector General
Auditor General, Department of the Navy

Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and Comptroller)
Auditor General, Department of the Air Force

Other Defense Organizations

Director, Defense Logistics Agency

Non-Defense Federal Organizations

Office of Management and Budget
General Accounting Office

Congressional Committees and Subcommittees, Chairman and Ranking Minority Member

Senate Committee on Appropriations
Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on Defense, Committee on Appropriations
House Committee on Armed Services
House Committee on Government Reform
House Subcommittee on Government Efficiency, Financial Management, and Intergovernmental Relations, Committee on Government Reform
House Subcommittee on Technology and Procurement Policy, Committee on Government Reform
House Subcommittee on National Security, Veterans Affairs, and International Relations, Committee on Government Reform

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